



A BRIEF HISTORY OF NAVIGATION. PART IV.



WAR-SHIP OF THE FOURTEENTH CENTURY. FROM FROISSART.

THE NAVIGATION OF THE MIDDLE AGES. PART II.

THE VENETIANS.

FROM the period at which we have now arrived, which is about the year 1200—the naval force of the Eastern empire gradually sank into insignificance, and never afterwards shone in an important light. An attempt was made by the Emperor Manuel to gain possession of Italy; but the little, and comparatively insignificant, republic of Venice showed itself more powerful at sea than the once mighty empire. From the time of that event no maritime undertakings of the Greeks are worthy of notice.

About this period the Crusades acquired a prominence in the history of Europe, which made the naval, as well as the military, strength of nations subservient to their object. These remarkable expeditions, it scarcely need be said, were sent out for the purpose of relieving the Holy Land from the subjection in which it had been placed by the Saracens, or followers of Mohammed. The nations which professed Christianity were emphatically called by the collective name of *Christendom*; and every nation of Christendom was called upon to send its quota to the general armament fitted out for the liberation of the Holy Land.

As the Holy Land could not be approached by land from Europe, except through the territory of the Eastern empire, and as the political relations of that empire with other countries did not always admit of its being made a military road from Europe to Palestine, it followed that the Mediterranean became the line of passage for the soldiers of the Cross; and thus a spur was given to the extension and improvement of naval operations.

In a former paragraph, we stated that the Normans, under Robert Guiscard, after having assisted the Sicilians, ingratiated themselves into their favour—and finally usurping all power among them, attacked the Eastern empire. The first attack was unsuccessful; but, subsequently, the empire was greatly harassed by the hardy Normans, who continually fitted out new armaments for the purpose of

waging war against the Greeks. These proceedings greatly augmented the number of war-galleys in the Mediterranean; for the Greeks mustered their whole naval force to repel the advance of the Normans, and called in the assistance of the Venetians and other powers. At one time, it is stated that fifteen hundred Greek galleys were floating on the Mediterranean. Various fluctuations of fortune attended the two contending powers, and for a long series of years continual conflicts were carried on, generally in favour of the Normans. At last, however, when two or three of the vigorous and talented monarchs of the Normans had died, and left behind them none who could wield the sceptre with the vigour which had marked the career of Robert Guiscard and his immediate descendants, the Norman power declined in the Mediterranean; and a marriage between the daughter of William of Normandy, and a prince of the house of Plantagenet, caused the annexation of the Norman dominions to the crown of France, and the Eastern or Greek empire became released from their harassing attacks.

No sooner were the bravest of the new nations of Europe settled in their respective provinces, as the Franks in Gaul, the Goths in Spain, and the Lombards in Italy, than navigation and commerce, and the proper methods of managing these pursuits, came to be properly attended to. These nations had never hitherto regarded shipping, excepting for the transport of their forces. Some think that the French had a great hand, among the first, in restoring navigation; others that the Italians were the early revivers of navigation, commerce, and all the attendant arts. The Venetians had already become a people deserving of note. Their origin was remarkable. Venetia was anciently a province on the Eastern coast of Italy, containing upwards of fifty cities; but, when the barbarians, under Alarie, king of the Goths, and afterwards under Attila, king of the Huns, overran Italy, the Venetians fared miserably, and were driven from their homes and their country. They retired to a cluster of small islands, seventy-two in number, situated in the Adriatic sea, and there gradually formed a community which, in process of time, almost ruled the sea;

although for a long period they had no fence against the sea but hurdles,—no other food than fish,—no wealth besides their boats,—and no merchandise but salt. These islands were marshy, and separated only by narrow channels; but they were well screened, and almost inaccessible. They had been only the residence of fishermen, who had here supported themselves by trading in fish and salt. It appears that the *Venezi* (as they were called in Latin) or Venetians, did not think of making a permanent residence in these islands; so that they had not for a long time any body politic; but each one of the islands was for many years governed by its own chief, and formed a distinct state. When their commerce and foreign dealings had made them objects of jealousy to foreign states, they thought of combining for mutual safety: and this union was first begun in the sixth century of the Christian era, and completed in the eighth. Their fleets then, in the course of time, visited all the ports of the Mediterranean and Egypt, and other places where the produce of the East was usually brought. When the Venetians, by enterprise and perseverance, became a commercial people, they sent out galleys to accompany and protect their merchant-ships. These galleys were often splendidly fitted up: the bows or forecastles were covered with a platform, on which the soldiers, who were always the flower of the army, could stand, as on dry land, and direct their arrows with certainty. No other fleets were found so capable of conveying the vast armies of the Cross to the Holy Land, as those of Venice, which, in consequence, were much benefited by the employment.

Venice being built in the middle of the sea, on these small islands, there is no room for the passage of horses and carriages. Their streets are, in fact, *canals*; and, the houses being built close to the water, passengers are conveyed from one part of the city to the other by means of *gondolas*, and the men who serve in the capacity of conducting these vessels, are called *gondoliers*. They are light built, and beautiful in form; highly ornamented, and having the ends rising to a considerable height. In the centre is a small room for the company, which is handsomely fitted up. These vessels are painted black. As there is not width enough for oars in these canal-streets, the men use paddles; one standing at each end with his paddle, and looking *towards* the part he is going to. The *gondoliers* accompany the strokes of their paddles with suitable melody, which has always been admired when heard there, and also when told of in other climes.



VENETIAN GONDOLA.

Under Vitalis Micheli, the thirty-third doge of Venice, a naval armament was fitted out from Venice for the service of the crusaders, which showed the power and wealth of that community. Two hundred galleys were prepared, which, after vanquishing the fleet of the neighbouring republic of Pisa, attacked Ascalon in Syria, and captured it, as well as other towns. Under the next two doges, Ordelapho Faliero, and Domenico Micheli, similar armaments were fitted out, and met with so much success on the Eastern shores of the Adriatic, on the coast of Africa, and in the Holy Land, that the envy of the Greek emperors was excited, and a series of fierce engagements took place between them.

An event occurred in the time of the next doge, about the year 1177, which led to the Venetian ceremony of the "Doge marrying the sea." Pope Alexander, being threatened with a hostile attack from Frederick Barbarossa, solicited the aid of the Venetians, which was afforded. Barbarossa sent a fleet of seventy-five very large galleys,

under his son Otho, to attack Venice itself; but the attempt utterly failed, and forty-eight of Otho's galleys were either sunk, captured, or destroyed. The pope, who had taken refuge at Venice, in order to signify his gratitude to the Venetians, presented the doge with a ring, and accompanied it with these words, "Take this ring, and present it to the sea, in token of your dominion over it. Enjoin your successors to perform annually the same ceremony, that succeeding ages may learn that your valour acquired this great prerogative, and has subjugated the ocean, even as a wife is subject to her husband."

This custom of the doge marrying the sea, was continued yearly for many centuries after this event. On Ascension-day in each year, the doge, the senators, the great lords and persons of quality, together with the foreign ambassadors, entered a splendid vessel, called the *Bucentaur*, which was fitted up with great elegance for the ceremony of marriage: it was gilt from the prow to the stern, and was covered over-head with a kind of tent, or awning, made of purple silk. When all the companions of the doge had sailed out into the open sea, in their gondolas, following the *Bucentaur*, the doge threw a gold ring into the waters, saying—"We marry thee, O Sea, in token of that true and perpetual dominion, which the republic has over thee."

The naval greatness of Venice soon afterwards received a still greater augmentation. The Eastern emperor having been deposed, his son solicited the aid of the Venetians, and of Baldwin, earl of Flanders, to reinstate his father on his rightful throne. Venice fitted out a large armament, consisting of sixty galleys, twenty ships of war,—the distinctive character of which is not precisely known,—and several transports. The object of the alliance was so far attained, that the usurper was deposed; but just at that crisis the old monarch died, and his son was murdered, so that Earl Baldwin was chosen emperor. In gratitude for the service which the Venetians rendered him in the course of these events, he gave them great privileges in his empire, and what was of more importance,—he permitted them to wage war against, and to gain possession of, the Greek islands in the Archipelago. Not only did the state itself engage in this attack on the islands, but private individuals formed themselves into communities or companies for the same purpose. The terms on which they joined were, that every person whose property amounted to a certain sum, should furnish a ship of a given description and force; and so, by a proportionate scale, that those who were more or less wealthy should furnish a quota according to their means. As the expense thus became a general, though private, concern, the profits resulting from it were proportioned according to each one's contribution. The result of these expeditions was, that the whole of the Greek islands became subject to the Venetians.

Shortly after this period, a fresh succession of naval engagements sprang up between the Venetians and the Genoese, the latter of whom, influenced by envy of the successes of the Venetians, strove to equal or to eclipse their formidable rivals. After a series of conflicts, the Venetians, under Dandolo, and the Genoese, under Doria, had a severe engagement, which terminated in the destruction of the Genoese fleet, and the capture of its commander. War after war followed, in which the Genoese gradually acquired an equality in naval greatness with the Venetians. It is not necessary for us here to follow the details of the sanguinary conflicts which took place in the Mediterranean in the thirteenth and fourteenth centuries; for there does not appear to have been any great improvement in the construction of the vessels during this period.

The people of Venice and of Genoa, then, have the glory of furthering the progress of navigation, and of giving it an impulse beyond what it had at any time previously acquired. For a long time, while the navy of England was in a very infantine condition, the English were supplied by the Venetians with articles of foreign produce. Soon after the Norman conquest, the Venetian vessels arrived regularly at Southampton, bringing Indian goods—silks, sugar, spices, aromatics, &c., which began now to be much used by men of rank. These were usually paid for in tin. In the course of time English ships traded to Lisbon; and were eventually fitted out for the Indian trade; that is, to meet the Arabian merchants, who brought the Indian commodities overland to the ports on the eastern parts of the Mediterranean sea. But Venetian pilots were long had in great request among the maritime nations of Europe.

On turning our attention again to Southern Europe, we meet with little but a succession of sanguinary wars

between the states which were on the decline, and new states, ambitious of rivalling their predecessors in power.

After the desperate struggles between the Venetians and the Genoese, a new power sprang up on the west of them. This was the kingdom of Arragon, which occupied a considerable part of Spain, Castile being the other part. The Arragonese soon acquired great influence in the Mediterranean; but it does not appear that either the form of their vessels, or their mode of navigation, presented any variation from those which had been observed by the Genoese, Venetians, &c.

It is a remarkable instance of the slow growth of naval power among military people, that the great Tamerlane, or Timour the Tartar, although he possessed all the country from the Irish and the Volga on the north, to the Persian Gulf on the south, and from the Ganges on the east, to Damascus on the west, could not cross the Hellespont into Europe, on account of his not possessing a single galley; and as the Greeks of the eastern empire joined with the Turks of Asia Minor in preventing Timour from hiring any vessels, he was forced to abandon an intended attack on Constantinople.

Shortly after this event, the eastern empire became extinct, in consequence of the conquest of Constantinople by the sultan of the Turks, Mahomet II. In the course of the proceedings attendant on this memorable event, a remarkable stratagem was adopted by the Turks to bring their slender fleet near the walls of Constantinople, without encountering the superior fleet of the Greeks. Gibbon thus describes it:—"The genius of Mahomet conceived and executed a plan of a bold and marvellous cast, of transporting by land his lighter vessels and military stores from the Bosphorus into the higher part of the harbour. The distance is about ten miles, the ground is uneven, and was overspread with thickets. A level way was covered with a broad platform of strong and solid planks, and to render them more slippery and smooth they were anointed with the fat of sheep and oxen. Fourscore light galleys and brigantines, of fifty and thirty oars, were disembarked on the Bosphorus shore, arranged successively on rollers, and drawn forwards by the power of men and pulleys. Two guides or pilots were stationed at the helm or prow of each vessel; the sails were unfurled to the wind; and the labour was cheered by song and acclamation. In the course of a single night this Turkish fleet painfully climbed the hill, steered over the plain, and was launched from the declivity into the shallow waters of the harbour, far above the molestation of the deeper vessels of the Greeks."

Shortly after the capture of Constantinople by the Turks, the Venetians turned their war-ships into that quarter, and attempted to dispute the possession of the islands in the Mediterranean with them. The success of the attempt, however, was but small; and Venice did not again maintain the proud position which she once occupied among the Mediterranean states. Indeed there were but few events of a naval character which need occupy much of our attention, until the arrival of that most important era, when commerce began to take the place of war, and the progress of discovery opened a road to the introduction of Europeans to nations and countries before unknown.

During these ages, the missions undertaken to different parts of the world, by land and sea, in order to convert the natives to Christianity, conduced to the general improvement of the human race. The expeditions of travellers promoted the same beneficial end; and particularly the excursions of Marco Polo, the Venetian, who roamed over Asia for twenty-four years, and brought home wealth and varied information respecting the different countries of the East; which information, embracing, as it did, many things new and wonderful, was in a great measure disbelieved, and even burlesqued in the comedies of the times. Until the travels of succeeding visitors had confirmed the relations of Marco Polo respecting the countries of the East, his name furnished a nick-name for a bombastic character.

THE PORTUGUESE AND SPANIARDS.

Henry, thy ardent mind first pierced the gloom
Of dark disastrous ignorance, that sat
Upon the southern wave, like the deep cloud
That lowered upon the woody skirts, and veiled
From mortal search, with umbrage ominous,
Madeira's unknown isle. But, look! the morn
Is kindled on the shadowy offing; streaks
Of clear cold light on Sagres' battlements
Are cast, where Henry watches, listening still
To the unwearied surge; and turning still

His anxious eyes to the horizon's bounds.
A sail appears, it swells, it shines: more high
Seen through the dusk it looms; and now the hul
Is black upon the surge, whilst she rolls on
Aloft,—the weather-beaten ship,—and now
Streams by the watch-tower!

BOWLES

We have often spoken of, and alluded to, the trade with India. This, from its lucrative nature, was always an object of desire with the several nations of Europe which had any means for putting shipping into use; which it was necessary to be prepared to do to a great and expensive extent, owing to the distance and difficulties to be encountered. After the Arabians of Asia, and the Venetians of Europe, the Portuguese early distinguished themselves by pushing out into unknown seas, improving thereby their commercial condition, and the geographical knowledge of the world.

It is supposed by many, that if ancient Carthage had not been so ruthlessly swept away from the earth by the Romans, the Portuguese would not have had the honour of opening to us the southern seas, nor the Spaniards of disclosing the varied features of the New World. But, from the time of the Carthaginians, until after the Crusades, there was no material improvement in the practice of navigation, nor in the art of ship-building. Soon after the Crusades the properties of the magnet were discovered, and above all, in course of time, its *polarity*; that is, its tendency to set itself with one of its ends pointing northward, and the other southward; so that it is said to be conformable with the magnetic meridian. The especial benefit derived from this instrument was, that the mariners could now leave sight of land; and would know, by inspection of the needle, what quarter of the horizon the ship was making for, whether by day or night, and under any condition of the weather: for, before this, if they left the land, the direction of the vessel could only be regulated by the heavenly bodies; and they were so bewildered in bad weather, that they often imagined they should be pitched off, in a storm, into the dark abodes of Erebus and Night.

It appears, by certain historical glimpses which we are enabled to obtain, that not only the magnet, but also the *needle*, which is only a magnet of a regular, slender, and easily-moveable shape, suspended on a pivot, for the sake of turning round the more easily to the various points of the horizon, was known to and used by the Chinese on land. They do not appear to have used it for marine purposes. The like may be observed respecting the Arabians. If they were in the habit of using the compass by land, they do not appear to have thought of applying it to their passage over the seas; and most of their voyaging was found to be merely coasting, even in the sixteenth century. The Portuguese, when they first visited the Indian seas, found that the Arabians, whose vessels chiefly traversed those waters, steered wholly by observation of the stars or of the land, and that they were quite ignorant of the compass. But it has, however, been supposed by many learned and acutely-thinking men that the germs of art and knowledge existed in the eastern regions of the world, while the western were a silent desert, or only in a state of barbarism; but that these germs of art and knowledge never in many cases received any practical value, and in others, any high degree of cultivation, until they fell under the notice of the exciting genius of the West.

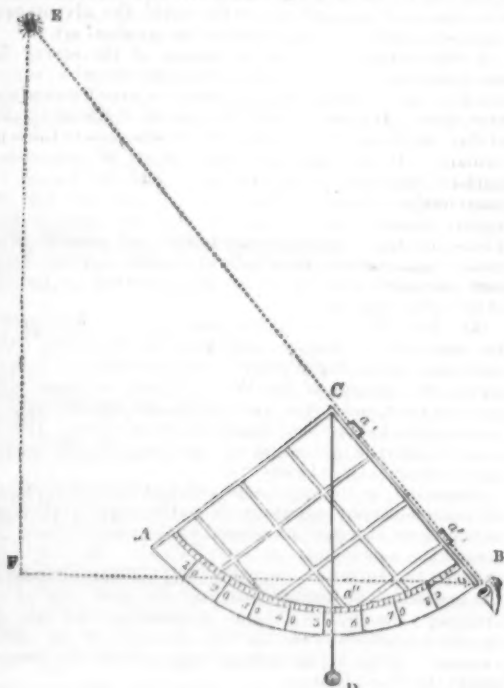
In the early part of the fifteenth century, John the First, king of Portugal, had effected some very important conquests over the Moors; in which he had been very materially assisted by his son, Prince Henry*, who, being an able and active-minded cavalier, took delight rather in the more solid glories of learning and science, than in the fame of war, in which he had, however, of late so highly distinguished himself. Upon the cessation of hostilities he retired to the promontory of St. Vincent, and lived at the sea-port town of Sagres, which he had himself founded, where he cultivated the science of Astronomy, for the purpose of making it available to the mariner, in guiding him over the ocean, when he had quitted the servile tracking of the shore. He, in fact, established a naval college, and an observatory. He engaged to his assistance all the best-informed men of his time; and the point to which he especially directed his attention, was the practicability of sailing round Africa, and of thus reaching the East Indies. His ideas respecting this

* The poet addresses this prince in the quotation that we have given in the preceding column. The writer takes this opportunity of acknowledging the respect and admiration which he feels towards the highly-gifted and venerable poet, in whose society he has passed some delightful hours.

accomplishment of this project had been awakened, or enlarged, by intercourse with some well-informed persons at Ceuta, a town on the coast of Africa, opposite to Gibraltar, whither his father's military proceedings against the Moors had carried him. Prince Henry did not live to see the whole of his views accomplished; but the many minor discoveries which were effected under his auspices, laid up a fund of knowledge and experience for succeeding navigators to profit by. Maps were formed under his superintendence; by which means all the geographical knowledge respecting the earth was brought together; the different parts were marked out; and the rocks, coasts, and quicksands to be avoided, were all noted down. Now also was first invented and brought into use the *astrolabe**, the original of the quadrant

That sage device, whose wondrous use proclaims
Th' immortal honour of its authors'† names,
The sun's height measur'd.—

It was an arch, to the extent of a quarter of a circle, such as $A B$; and the rim was divided into degrees and half-degrees. Its primeval use was to take the altitude of the North polar star, in order to determine the latitude of a place, which is its distance North or South from the Equator; for which purpose a plummet, $c d$, was suspended by a string from the centre of the instrument, c , and thus the angle of elevation of the heavenly body was marked. An eye at u , sees the star ϵ through the sights $a a'$; to make which observation the whole instrument must be so raised upwards, that the plumb-line $c d$ shall fall vertically upon the quadrantal arc $A B$. The arc included between A and a' is the angular elevation of the star ϵ ; or the angle $\epsilon B F = 51^\circ$



THE ASTROLABE, OR QUADRANT.

To a person situated at the equator, the polar star will appear in the northern horizon. In proportion as he advances northward, this star will gain in altitude; so that when he shall have arrived at the pole itself, the star will be vertical to him; the pole being 90° north of the equator: hence the latitude of the place corresponds (nearly) with the altitude of the polar star. These observations would of course only serve for places in the northern hemisphere; as, on the southern side of the equator, the polar star would be below the horizon. In the early stage of nautico-astronomical science, these considerations were sufficient for navigators; but now, to determine the latitude of a place accurately by an altitude of the polar star, corrections must be made for this star's not being precisely vertical to the pole, but describing a small circle round it, owing to the diurnal revolu-

* A word formed from the Greek, implying to take the height of the stars.

† Two Jewish physicians, named Roderic and Joseph.

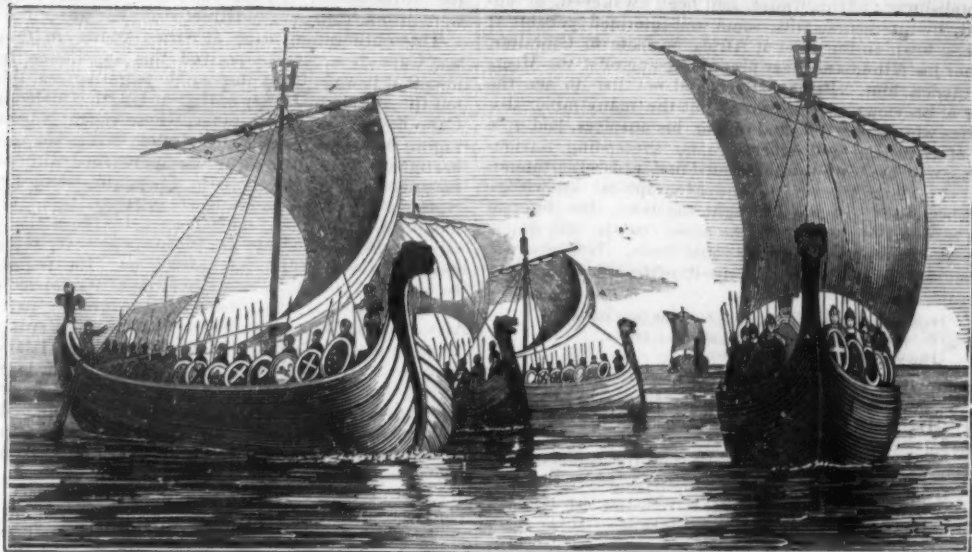
tion of the earth. Tables and other nautical instruments were also at this time constructed for the use of the sailor.

The southernmost cape of Africa known in those days was Cape Non, which received this appellation from the idea that it was utterly impossible to get beyond this cape; but the officers of Henry having at length doubled it, found Cape Bojador in the distance, whose violent currents and raging breakers, running for miles out to sea, seemed a barrier which could not even be approached with safety by mariners, who were in the habit of coasting along the shore. Seamen now began to be more alarmed than ever at the idea of the torrid zone, and to propagate the notion, that he who should double Cape Bojador would never return. At length this awful cape was passed by; the region of the tropics was penetrated, and divested of its fancied terrors; the river Senegal was observed, the greater part of the African coast, from Cape Blanco to Cape de Verde, was explored, and the Cape de Verde and Azore Islands were discovered; the Madeiras and Canaries having been visited for the first time by the Spaniards some years before. This prince died in the year 1473; after having obtained a papal bull, investing the crown of Portugal with sovereign authority over all the lands it might discover in the Atlantic, to India inclusive.

Many of the inhabitants of the African coast felt the most curious sensations of astonishment and fear at the sight of the vessels, which probably for the first time had reached their shores. When they first saw the ships under sail, they took them for large birds with white wings, that had come from foreign countries; but when the sails were furled, they thought, from the great length of the vessels, and from their swimming on the water, that they must be great fishes. Others believed that they were spirits that wandered about by night; because they were seen at anchor in the evening at one place, and would be a hundred miles distant by the morning. Not being able to conceive how anything human could travel more in one night than they could in three days, they set down the European vessels for denizens of another world. "There is no man ignorant," says Sir Walter Raleigh, "that ships, without putting themselves out of breath, will easily outrun the soldiers that coast them." "A fleet of ships may be seen at sunset, and after it, at the Lizard; yet by the next morning they may recover Portland; whereas an army on foot shall not be able to march it in six days."

A spirit of discovery, and a hope of gain through commerce, was certainly the real and avowed object of the Portuguese in venturing into these unknown seas and regions of horror. But it seems that, in all the early pursuit of art and science, the *romantic* was always mingled with the *actual* and *substantial*, owing to partial knowledge; which taste for the romantic filled up the picture, when true knowledge was wanting. The adventurers in the expedition just alluded to, and in several subsequent ones, hoped to open an intercourse with a prince or personage, of whom they had often heard much, under the mysterious title of *Prester John*. This singular name, it is said, was first introduced by travellers from eastern Asia, where it had been applied to some one of the early Christian bishops, who held there a sort of sovereignty; and as soon as a rumour was heard of a Christian king of Abyssinia, he was concluded at once to be the real *Prester John*. The geographical relations of the African continent not being then well understood, it was supposed that ambassadors from the western coasts might very easily reach his capital. It is not known what was expected at meeting with this phantom of glory, which always seemed to recede as they approached it; but there seems to have been a decided impression on the minds of the Portuguese, as in the case of the Arabs, who sought for Gog and Magog, that their nation would be raised to an exceeding height of power and glory, if they could discover the abode of this potentate. Hence, instructions were given to all officers employed in the African service, to endeavour in every quarter, and by every means, to accomplish this grand discovery. They accordingly never failed to question all whom they met on the coasts about *Prester John*, whose name, they were told by the natives, had never been heard of. They then besought the people whom they saw on the coasts, to inquire up the country for *Prester John*; promising large rewards to any who should give information, which might lead to success.

A correspondence between the king of Benin, which is situated on the west of Africa, a little north of the equator, and the king of Portugal, John the Second, led the latter to suppose that the real *Prester John* had been at last dis-



NORMAN VESSEL.

covered. The negro ambassador of the king of Benin informed the king of Portugal that about 600 or 700 miles east of Benin, there was a mighty king, called Ogané, who was held, by the pagan chiefs of that country, in the same veneration that the Pope was held in by the sovereigns of Europe. They further stated that, at the death of the king of Benin, his successor had to send ambassadors to Ogané, with presents, desiring to be confirmed in his kingdom, as the lawful heir. The pontiff Ogané sent him, in return, a staff and a brazen helmet, for a sceptre and crown; and also a brass cross for the neck. If the king did not receive these ensigns of his dignity, he would not be regarded as king by the people. This Ogané was never seen; a silk curtain being always suspended before him; and, when the ambassador was about to retire, a foot was protruded from the curtain, to which foot they would do homage, as to a holy thing. The ambassadors were then, upon their departure, likewise presented with small crosses. Many other curious stories have been handed down to account for the origin of, and to show what was meant by, this John the Priest and his kingdom.

As a specimen of the exploits of this hero, we are told that, when the Mongol army marched against the Christians of the Greater India, which was governed by Prester John, he "caused a number of hollow copper figures to be made, resembling men, which were stuffed with combustibles and set upon horses, each having a man behind on the horse, with a pair of bellows to stir up the fire. At the first onset of the battle, these mounted figures were sent forward to the charge; the men who rode behind them set fire to the combustibles, and then blew strongly with the bellows; immediately the Mongol men and horses were burnt with wild-fire, and the air was darkened with smoke. Then the Indians fell upon the Mongols, who were thrown into confusion by this new mode of warfare, and routed them with great slaughter."

After several other voyages, in which more of Africa was explored than had hitherto been known, Bartholomew Diaz, having been appointed to the command of an expedition at the end of the fifteenth century, succeeded in doubling the most southern promontory of Africa, which, in consequence of the storms and tempests he had endured in sailing round about in those parts, he called the *Stormy Cape*, but which the king of Portugal, at his return, called the *Cape of Good Hope*, in order that future navigators might not be alarmed by the inauspicious title given by Diaz, and that the new appellation might seem to give tokens of the advantage to accrue to those who should follow up the endeavours of the sailors of the day.

It has been well remarked, that, "enterprises of a bold character remain often suspended until some man appears who is fitted to carry them into execution." Thus it was with the voyage to India. It was not accomplished till some time after; when Vasco de Gama, in the year 1497, not only doubled the Cape of Good Hope, but having then steered eastward, for the first time led the Portuguese into the

Indian seas; and thus established a communication with India, which was kept up long after, and conducted alike to the increase of a knowledge of the world, the advantages of commerce, and an enlargement of the nautical art.

In this voyage the dreadful disease of the *scurvy* first manifested itself; or, at least, is first mentioned in connexion with sailors, which scourge seems to have followed them ever after. It results chiefly from mode of life and quality of diet, and is soothed or removed by attention to these particulars. It has been the chief object of solicitude to modern surgeons at sea, who have met the disease with considerable success. Captain Cook was the first who rightly treated this disease: he led the way to those numerous improvements in the health and comfort of the modern sailor, which place him in so vastly superior a situation, compared with that of the sailor previous to the time of this great captain.

The New World had at this time just been laid open to the enterprise of Europe; and thus the Peninsula, which comprises Spain and Portugal, was enriched and ennobled among the nations of the West. Vasco de Gama again doubled the Cape in the year 1499, and arrived again in Lisbon after having been absent about two years. He was received with the highest honour and magnificence, and created Admiral of the Indies.

Columbus, in the mean while, who had been disappointed of countenance and assistance from the court of Portugal, having been at length patronised by the court of Spain, had visited the new hemisphere, and returned. He had hoped to reach the Indies by a western route, but was detained by the magnitude of his discoveries on the other side of the Atlantic; having, it is true, supposed at first that the islands he met with, were but the outskirts of the Indian continent, lying to the east of Asia, which he therefore called the *West Indies*.



EARLY ENGLISH VESSEL.

We must now turn our attention again to the state of navigation with the English, while we shall notice at the same time whatever bears relation to it among the nations of Europe, who now engrossed, in great measure, the historical glory of the human race.

France does not appear to have acquired any naval strength until about the twelfth century; for she seldom took part in the Mediterranean battles. About the period to which we now allude, however, France found herself compelled to resist the attacks of the English, who ruled the English channel almost uninterruptedly. A series of wars ensued between the English and French, for a long succession of years, during which there appear to have been great improvements made in the construction of their vessels, for there was now a regular distinction effected between galleys and ships of war.

The fleet in which Richard Cœur-de-Lion went to the Holy Land, was an object of great admiration in those days, from its extent and beauty. His ships, collected from all the ports of England, and the west coast of France, which was entirely subject to him and his mother, formed the finest fleet that had ever been under the command of any king of England. There appear to have been thirteen large ships called *Busses* or *Dromons*, which sailed with a triple spread of sails; about fifty armed galleys; and 100 transports or vessels of burden. Besides these there were 106 vessels, which had assembled at Lisbon, coasted round Spain as far as Marseilles, and thence took a departure for Syria, without touching at any other port. The average number of men sufficient to navigate these, and even those of later times, was forty for the largest vessels, twenty for smaller ones, and ten or fifteen for still smaller ships.

All these vessels rowed, and also sailed. The galleys were adorned with innumerable pennants, waving in the wind; and banners or standards, fixed in graceful order on the tops of the spears. The *Rostra*, or beaks, were distinguished by the variety of their paintings or figures; and the prows of the vessels shone with the light reflected from the shields fixed upon them. In order to keep the fleet from dispersing in the night time, a lantern was carried aloft by the king's vessel, which led the way for the whole fleet.

The accidents which occurred to William, son of Henry the First, and to Henry, son of Henry the Second, sufficiently show that the boats in use at those periods must have been of very large size. The former prince, having embarked on board a new vessel, built by himself, for the purpose of conveying himself and suite, inconsiderately attempted to out sail that of the king; in consequence of which it ran on a reef of rocks near the shore. The boat was immediately hoisted out, and the prince, with some of his attendants, might have escaped, but between two and three hundred persons got into the boat, caused it to upset, and all were drowned. On the other occasion, the king having made an excursion to Brittany, was overtaken by a violent storm on his return, by which a boat, in which were his son Henry and three hundred other persons, was upset. The large number of persons contained in these boats, is indicative of the great dimensions of which they must have been made.

King John, whatever were his defects as regards the internal government of his kingdom, paid great attention to maritime affairs, and the English navy gained great strength during his reign. On one occasion his admirals adopted a singular mode of annoying an enemy:—they fixed a number of pots on the decks of the English vessels, filled with unslaked lime; water being poured into these vessels a short time before the commencement of the engagement, and the English keeping the windward side of the pots, the smoke or steam was driven so forcibly into the faces of the enemy, that the latter were almost deprived of the power of defence. Taking advantage of this state of things, the English plied their arrows and other missiles with such effect, that they gained a complete victory over a very superior fleet.

During the reign of Edward the Third, an engagement took place between the English and French fleets, which is worthy of remark, as a change in the form of vessels was observed at that time. The battle in question was fought off the coast of Flanders; and the English ships engaged in it differed so far from those which have hitherto occupied our attention, that no galleys or beaked vessels were employed: they were, in fact, more nearly what we should call ships. On board of these ships, the archers and slingers, supplying the place of the modern musketeers or marines,

were stationed near the prow or stern; the centre, or mid-ship, was filled with the various engines then in use, contrived for the purpose of throwing large darts and stones, which were not long after supplanted by the introduction of cannon. The array in which these ships were formed for the battle, was this:—The largest, and consequently the stoutest, vessels were stationed in front; those on each wing or flank were filled with archers, with the exception of every third vessel, which was manned with a crew more numerous than the rest, and with many of that class of soldiers styled "men at arms," for the purpose of working the engines to which we have alluded above. A second line of ships was formed as a *corps de reserve*. Oars began to be very much abandoned at this time; but still they were retained as a resource when the wind failed to fill the sails.

From the evidence of coins, sculpture, &c., it appears that the vessels employed at this time, under the name of ships, were much shorter than the ancient galleys, and their sterns and prows were considerably more elevated above the surface of the water than the midship or centre of the vessel, which, from the peculiar shape of the bow and after-part, assumed much the contour of a half-moon. The masts were, generally speaking, single, and seldom, if ever, exceeded two in number. The sails were all square; and the yards, lowering down on the deck, like those of a modern lugger, when the vessel was brought to anchor, rendered the rigging very simple. The frame, which formed the support of the hull, was, in principle, similar to that now constructed, except that those which are called the *filling timbers* were omitted. The outside planks were fastened to the frame by iron nails; and were not set edge to edge, but lapped one over another, with a sufficient caulking between them to keep out the water. In other respects the ships greatly resembled the Mediterranean galleys.

In these ages there existed, for about two centuries, a great commercial and nautical power in the *Hanseatic League*, which was an union of several of the principal maritime cities of Europe, in order to protect each other against the princes of those days, who were mere warriors, and whose chief occupation was robbery and plunder. The League therefore kept fighting-ships, and numbered seventy-two cities in their association. In course of time, as each nation, and England in particular, began to be able to defend itself, this association became extinct.

It may now be interesting to enter into a few details respecting the gradual changes in the form of vessels during the fifteenth century.

The ancient galleys were superseded by what were termed *galleons*, in which the sides were raised higher than those of the galleys, in order partly to allow room for the port-holes of cannon, after that description of arms became prevalent. In order to carry up the sides of the vessels to a greater height, it was necessary to determine whether they should be vertical, or decline outwards, or incline inwards; in general the latter plan was adopted, so that the deck was scarcely half the breadth of the hold, or lower part, and gave to the vessel a clumsy appearance, which may often be seen in representations of vessels of those times.

The galley, the galleon, and the galleas, had certain distinctive characters peculiar to each. The galley bore a strong resemblance to the rude vessels of earlier ages, so far as form was concerned; and when cannon were introduced upon them, they were placed upon deck, and simply fired over the side of the ship, or through small notches cut in the gunwale. The galleasses carried guns on their broad-sides between the oars, of which there were three tiers or banks: the galleas was much larger and broader than the galley; and was furnished at the head and stern with cannon, larger and more numerous than those in the galley. These vessels, which were peculiar to Venice, were sometimes above 150 feet long, and more than thirty wide; they had also three masts, and sails of a triangular form. The galleon differed both from the galley and the galleas in the important circumstance of being *without oars*, its propulsion being accomplished entirely by sails: the contraction of the width of the vessel as it approached the deck, was, as we just observed, another point of distinction in them.

The ancient war-galleys, then, were not entirely given up until the commencement of the fifteenth century; for, though some innovations had crept into the use and management of them, the distinctive character of *oars* had not yet been set aside. But now, among the nations which were active in nautical affairs, larger ships began to be used, having sails: they were of a crooked half-moon shape, high

at the stem and stern. The planks were nailed together, and overlapped with iron. The sails were square, and were suspended from two masts. This may be called the sum of ship-building characteristics for this age. The bowsprit, or sloping mast at the head of a vessel, was first employed in the reign of Henry the Sixth, when four masts were sometimes used, having a sail to each. Soon after, the largest vessels had a forecabin, or place for the foremast, at the head, and a cabin at the stern. The largest ships, that were managed by sails, were called *carricks*; the inferior vessels were *galleys, hulks, barges, &c.* The first trading vessel of large size was built at Hull, in the year 1449. In 1474, we read of two ships at Bristol, one of 500 tons burden, and the other of 900. Henry the Eighth, we are told, had a ship of 1000 tons burden, called the "Great Harry," which had four masts, with balconies, turrets, and towers; and flags streaming from every elevated part. These vessels did not usually belong to one person; for several parties would engage in a trading adventure; of which parties the government of the country often formed one. Before the practice of marine insurance reduced the hazard of the sea to almost arithmetical certainty, it was more necessary than now for ship-owners to divide their risk by holding shares in several vessels, rather than embarking too much of their capital in one bottom. Accordingly, about the year 1100, when insurance was certainly unknown in England, and perhaps even in the commercial states bordering on the Mediterranean, we find a half-share of one vessel, and a quarter of another, belonging to Godrick, a native of Walpole, in Norfolk. The celebrated Whittington appears to have been a successful mercantile speculator, whose ship, from some circumstances handed down to us, partly truth and partly gossip, was named "*the Cat*." He lived in the reign of Henry the Fourth, at the beginning of the fifteenth century.

The following description has been left of a Scottish ship of war of about this period:—"The king of Scotland rigged a great ship called the Great Michael, which was the largest, and of superior strength to any that had sailed from England or France: for this ship was of so great stature, and took so much timber, that except Falkland, she wasted all the woods in Fife, which were oak wood, with all timber that was gotten out of Norway; for she was so strong, and of so great length and breadth, that all the wrights of Scotland, yea and many strangers, were at her devices by the king's command, who wrought very busily in her; but it was a year and a day ere she was completed. To wit, she was twelve score foot of length, and thirty-six foot within the sides, she was ten foot thick in the wall and boards; on every side so slack and so thick that no cannon could go through her. This great ship cumbered Scotland to get her to sea. From that time that she was afloat, and her masts and sails complete, with anchors offering thereto, she was counted to the king to be thirty thousand pounds expence, by her artillery, which was very great and costly to the king, by all the rest of her orders. To wit, she bore many cannon, six on every side, with three great bassils, two behind in her dock, and one before, with three hundred shot of small artillery, that is to say, myand and battered falcon and quarter falcon, flings, pestilent serpents, and double dogs, with hagtor and culvering, crossbows and handbows. She had three hundred mariners to sail her: she had six score of gunners to use her artillery, and had a thousand men of war by her captains, shippers, and quarter-masters." We may easily suppose that this was a wonder of the age, and not a very correct type of the generality of the Scotch king's ships.

Until the introduction of the compass and nautical astronomy, ship-building, and the management of vessels generally, advanced not beyond the condition to which we have alluded: but, when men were freed from dependence upon the land by the application of new nautical aids, the increased means which they possessed, led to discovery and further improvement; which, in turn, conducted to the greater perfection and applicability of the aids in question. So that one acted upon the other, in the service of man; and, in due course of time, the other conveniences and necessities for conducting a voyage over the wide sea, were introduced and employed.

It appears that, in all ages, seamen have been superstitious and credulous to an extraordinary degree. Those who, when danger is near, have the courage of the lion, have at other times much of the simplicity of a child. Among the wonders, which used to be faithfully credited by sailors, was the *Mermaid*, a creature who was said to be

half woman and half fish. During the middle ages numerous narratives were made by seamen, of the mermaids whom they encountered in their voyages. In modern times the belief in the existence of these semi-human beings has died away; but the following account will show that not only seamen, but men of literary attainments credited their existence. It is taken from HARRIS'S *Navigantium atque Itinerantium Bibliotheca**, which was published in the early part of the last century.

"As Captain Whitbourn was standing by the water-side, in St. John's harbour, in Newfoundland, one day early in the morning, he spied a creature making very swiftly towards him, which, by the eyes, nose, chin, ears, neck, forehead, and, in a word, by all those upper parts, which were very well proportioned, appeared to be a woman. The hair indeed was to be excepted; for instead of that, there were all round about upon the head as it were blue streaks, which much resembled hair, and hung down to the neck. The captain says, he beheld it intensely, (and so did another of his company, that stood not far from him,) and stayed till it came to about the length of a long pike from him, and then he thought it time to go backwards. When the creature saw that he went from it, it turned about also, and made away, which gave him the opportunity of viewing the shoulders and back parts of it, down to the waist, which he declares were as square, smooth, and white, as the like parts in mankind. From the middle to the lower part (to use his own words) it went pointing, in proportion like a broad-hooked arrow: but how it was in the fore-part of the body, from the neck and shoulders downwards, he could not discern, because it did not advance towards him so much above the water as it went away. This siren had a mind for the captain's company in some palace or other within the dominions of Neptune; but he (though otherwise a man of good breeding) refused the favour and slighted her. What she would have done with him there, the Lord knows; however, he knew there was no good wine in that country, but on the other hand, a most confounded guzzling of salt water, such as would no way agree with his constitution. So he retired from her, and thereby, perhaps, escaped a drinking bout, which would have cost him his life, and deprived him of Christian burial too. The siren let him go, and did not attempt, by any further discovery of her charms, to seduce him. She had shown him those of her face, but thought him unworthy of the charms of her voice; those which poets through all antiquity have so wonderfully extolled. However, the same creature came shortly after to the side of a boat, in which were some of the captain's men, and endeavoured to come in to them. These fellows were sufficiently scared at the sight of it, but ready to leap out of the boat when they saw it attempting to get in; yet one of them recovered so much spirit, as to manage his oar, with which he struck the siren a sound blow across the head, that made her let go her hold, and drop into the water. But that it did not kill her was plain, by her coming afterwards to some boats in the harbour; at which time, the boats being near the shore, the men got all out and ran for their lives. This appeared to be the very same with the former, and the same it was, unless she died from that blow upon the head, and waked afterwards. Upon the whole we can't see why this relation should not as effectually persuade all people that there are such creatures, as the voyage itself should that there is such a place as Newfoundland; for a man used to converse with the dangers and monsters of the sea, one may very easily believe not to be timorous. And a man can have no interest in forming a story of a mermaid, which is not at all adapted to serve any design in church or state. If the reader won't be convinced by this, there is no way for him, but to follow the captain to St. John's harbour, and there wait for ocular demonstration."

Thus wrote Mr. Harris, who was the editor of the first English Encyclopædia. We doubt, however, whether any of our modern readers would like to follow his advice, by taking a voyage to Newfoundland, and there wait till they obtained "ocular demonstration" of the existence of mermaids! It is difficult at the present day, to conjecture what these mermaids really were; but we shall probably be safe in affirming that superstition and imagination had a large share in their creation.

We may perhaps consider unicorns and mermaids to be about equally deserving of credit. Many ancient travellers brought home marvellous accounts of the unicorn. Purchas, who wrote his "*Pilgrimage*" between two and three hundred years ago, has this remark:—"In Bengala are

found great numbers of Abadas or Rhinoceroses, whose horns (growing up from his snout,) teeth, flesh, blood, claws, and whatsoever he hath without and within his body, is good against poison, and is much accounted of through all India. The skin upon the upper part of this beast is all wrinkled, as if he were armed with shields. It is a great enemy of the elephant. Some think that this is the right Unicorn, because as yet there is no other by late travellers found, but only by hearsay. Lodowick Vertomannus saith he saw a couple of those other Unicorns, at Mecca: one whereof had a horn of three cubits, being of the bignesse of a colt of two yeeres and a halfe old: the other was much lesse: both sent to the sultan of Mecca, for a rare present out of Ethiopia. Gesner, in his booke of foure-footed beasts, citeth this testimony, and some others, whereby he persuadeth that there are divers sortes of these Unicorns: but it cannot seem otherwise than strange, that in this last hundred of yeeres, wherein the world hath vn-veiled her face more than euer before; none of credit (that I haue heard) hath affirmed himselfe to haue seene this Unicorn, but in picture."

The passage round the Cape of Good Hope having been effected, other nations, such as the Dutch, the English, and the French, were not slow in following in the same track; among whom the English in due course of time signalled themselves; which led to the foundation of the East India Company in the reign of Queen Elizabeth. The establishment of this company promoted the growth of commerce, and fostered a spirit of discovery; by both of which the human race has been remarkably benefited.

As we shall soon have to speak of those voyages to the West, by which the whole habitable globe was laid open to the industry and curiosity of man, it will be proper in this place to preface the western discoveries by noticing the various traditions, which were popularly believed in Europe, respecting what was, or was supposed to be, in or beyond the vast waters of the Atlantic.

It was said that, at a time indefinitely remote, there existed a vast insular territory, extending beyond the coasts of Europe and Africa; and that this land was called *Atlantis*. In the fourteenth century, maps were drawn representing this strange country, which having been shaken for three days to its foundation by an incessant earthquake, at length yielded to the irresistible and mysterious power of the Deity, and sank with its inhabitants into the depths of the ocean. It was given out that the inhabitants of Madeira, and the other western isles, saw, at certain times, and in very clear weather, land appearing in their western horizon, and always in the same direction. It is said that the islanders are sometimes persuaded of this at the present day; and that, in the middle of the last century, this visionary land was seen so distinctly, that a vessel actually sailed out to discover it; but it faded away before the navigators, as in former cases when they sought to get near it. This land was called *St. Brandon's* land; he being a Scottish saint had in repute among the Northmen, who first sailed into these parts, in the sixth century, and who first roused a belief in the existence of western lands; which belief they themselves first entertained.

In like manner also, the people of the islands of Arran, at the mouth of the Galway bay, off the west coast of Ireland, who are descended from the Northmen, fancy they see from time to time, the shores of a happy country, rising above the waves; with which country they say Ireland was formerly united, until, owing to the sins and offences of its inhabitants, the greater part of it was swallowed up in the ocean. This, with the preceding fancied appearances, was doubtless the result of some optical delusion. But, in a map published by Martin Behm, about the time when Columbus set out on his expedition, we find the island of *Antilla*, or the *Seven Cities*, lying out a little more westward than the Azores. These cities were said to have been built and occupied by the Christians who fled from Spain when that country was conquered by the Moors. These imaginary cities the Spaniards endeavoured to find, soon after their discovery of America. Northward of these cities the maps of the times placed the *Island of the Devil's Hand*; which seems to have been so called chiefly in accordance with an Arabian tale, which relates, that in the Indian sea there is an island, near which a great hand rises every night from

the water, and, grasping the inhabitants, plunges them into the ocean. This story, being joined with the common notion, that the dead reposed in the far-off west, gave rise to the appellation stated above. Still further on, but nearer the equator, is *St. Brandon's Island*; and still further on, are placed many of the countries visited by Marco Paulo, the Venetian traveller; which countries are named as abounding in every thing rich and beautiful. The seas are peopled with sirens. Beyond these countries, but on the other side of the equator, are ten small islands, where ships cannot sail, owing to the loadstone, which abounds in the rocks, attracting the nails and iron-work out of the ships, and so causing them to fall to pieces.

We have already observed, that the traditions just related might probably have had a certain effect upon the mind of Columbus, to stir him up to solve the problems and difficulties which had long been started on this point. But this could not have been sufficient to decide the calm and reasoning mind of Columbus, that land might be found on the opposite hemisphere of the world; or rather, that by sailing on westward, the East Indies must necessarily be arrived at. A due consideration of the spherical figure of the earth, with the fullest knowledge of astronomy, geography, and navigation, which the times afforded, were the main aids, which incited this distinguished navigator to institute, and to carry to a successful termination, the task of examining the more distant portions of the globe. Not but that such information might have occasionally reached Columbus, as was likely to influence his judgment in a subordinate degree. It appears that the inhabitants of some of the islands west of Africa had picked up every now and then pieces of artificially carved wood, which could not have been cut with a knife, and which must have been brought thither by strong westerly winds. Other persons, navigating in those seas, had taken up canes of an extraordinary size, described by Ptolemy as peculiar to India, trunks of large pine-trees, which had been torn up by the roots, and plants such as had not been seen in the Old World. Some bodies of men were once found upon the shore of Flores, one of the Azores, having been cast there by the waves. These bodies had features and complexions differing essentially from those of the inhabitants of Africa, or of Europe, or from anything hitherto seen; and were in consequence always adjudged to have been wafted over from the West.

After much toil and vexation of body and mind, endured first at the court of Portugal, which, having deluded him, he was obliged to forsake, and afterwards at the court of Spain, as we before remarked, this latter power at length sent Columbus out on a voyage of discovery towards the West, in the year 1492. The expedition consisted of three vessels, having on board about one hundred men; and at setting out Columbus appears to have proposed to himself the exceeding probability of reaching the kingdoms of Cathay and Zipangu, which formed, according to the cosmography of the day, part of the great continent of India, on the Asiatic coast, and were distant about one-third of the circumference of the earth, as he supposed. He thus set out under the influence of two favourable errors; thinking, first, that Asia extended so much more to the East than it really does, and, secondly, that the Earth was much smaller than it has since been proved to be. The empire of Cathay, mentioned above, appears to have been *China*, which had been long described as being extensive, opulent, and populous. The inhabitants, we are told, had a very exalted notion of themselves, which they evinced by saying that they alone, of all people in the world, *had two eyes*. The Latins, say they, *have one*; but all other nations are blind.

Columbus arrived first at the island of San Salvador; after which he visited several of the West India islands, and settled a colony in Hispaniola. He then again set sail for Spain, and reached the port of Palos on the 15th of March, 1493. He was ill-treated, and ultimately neglected by the court of Spain, which he had faithfully served. He died in 1506.

In our next paper we shall enter upon the subject of Modern Navigation.

END OF THE THIRTEENTH VOLUME.

